



## **Inhomogeneous properties of the scattering wavefield on Mt. Vesuvius**

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We analyzed 2261 local earthquakes registered on Mt. Vesuvius in the time period 1996-2000 to check for time and space stability of the coda envelope shapes. Separately for each station we observed that the coda envelope decay rate doesn't show any temporal variation while we noticed that the  $Q_C^{-1}$  takes different values for the recording stations located close to the crater respect to the stations located further away. In particular the envelope decreases faster for the stations located close to the crater. We compared the ratio of the S-wave amplitude (corrected for the geometrical spreading) to the coda wave amplitude with the ratio expected for the coda normalization theory (Aki, 1980). We deduced that the scattering wavefield is not homogeneous on Vesuvius. We also tried to fit the ratio found for Vesuvius with that expected from the hybrid single-scattering-diffusion solution proposed by Zeng (1991) finding that also this model is not applicable on the Vesuvian data. In conclusion we verified the existence of a coda localization phenomenon in this area. The occurrence of this phenomenon can be associated with the topography of Mt. Vesuvius or with the particular configuration of the hypocenters of the events registered on the volcano.